

What is claimed is:

1. A punching apparatus for punching a hole at a predetermined location on a work by means of a punch integrated into any one of a moving part of a press working machine and a supporting part of the press working machine and a die integrated with the other one of the moving part and the supporting part, wherein each of the punch and the die has plurality of planes to be fitted with datum planes of a fitting jig.
2. A punching apparatus according to claim 1, wherein the hole has a non-circular cross section.
3. A punching apparatus according to claim 1, wherein the punch and the die can rotate, independently of the moving part and the supporting part, about an axis parallel to the direction for the punching, and are not possible to round relative to each other by touching the planes for fitting with the datum planes of the fitting jig.
4. A punching apparatus according to claim 1, wherein said planes for fitting lie parallel to the direction for punching and are vertical relative to each other.
5. A punching unit for a punching apparatus for punching a hole at a predetermined location on a work, comprising a punch, a die, and a fitting jig for positioning the punch and the die each other, wherein each of the punch and the die has plurality of faces for fitting and the fitting jig has datum planes to be fitted with the planes for fitting of the punch and the die.
6. A punching unit according to claim 5 wherein said punch and the die can rotate independently of the punching machine, about an axis

parallel to the direction for punching and can rotate integrally in a state where the datum planes of the fitting jig are attached with each of the planes for fitting of the punch and the die.

7. A punching apparatus according to claim 3, wherein said fitting jig has  
5 a U-shaped cross section having a pair of arms on one inner surface of which one of the datum planes is arranged and on the other one inner surface of which the other one of the datum planes is arranged in order  
5 to hold the punch and the die there between and also order to fit the plane for fitting of the punch and the die with the datum planes of the fitting jig while rotating about the axis.

8. A punching unit according to claim 6, wherein said fitting jig has a U-shaped cross section having a pair of arms on one inner surface of which one of the datum planes is arranged and on the other one inner surface of which the other one of the datum planes is arranged in order  
15 to hold the punch and the die there between and also order to fit the plane for fitting of the punch and the die with the datum planes of the fitting jig while rotating about the axis.